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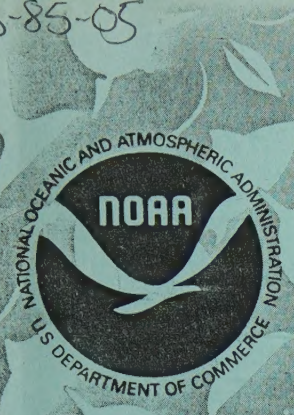

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MARCH 1985

VESSEL CHARACTERISTICS AND PERFORMANCE OF THE NORTH PACIFIC ALBACORE FLEET 1974-1976

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AND
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Administrative Report No. LJ-85-05

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INTRODUCTION

The purpose of this investigation is to provide baseline information on the structure, operations and performance of the harvesting sector of the north Pacific albacore fishery. To this end, the Coastwide Data Base (CWDB) is used to examine the fishing activity of vessels that have participated in the north Pacific albacore fishery from 1974 through 1976.

The CWDB is a comprehensive source of information on commercial fishing activity for the states of Washington, Oregon, and California from 1974 through 1976. It contains data for all vessels that had commercial landings in these states for that period. Each vessel in the CWDB is described in terms of its physical characteristics, and its landings are summarized weekly by species, gear type, port of landing, pounds landed, and average price per pound (Coastwide Summary Data Base General User's Manual, 1980).

METHOD

During the period 1974 through 1976, over four thousand distinct vessels landed albacore at continental, Pacific coast ports. Approximately two thousand vessels landed albacore in each year, but only 780 vessels landed albacore in all three years. Altogether, there were data for over ten thousand vessels that participated in Pacific coast fisheries during the years 1974-76 in the CWDB, but only 25% had annual ex-vessel revenues of $10,000 or more. This information has been used as a basis for creating the various data sets that enter the analysis.

A consistent perspective was needed to analyze the behavior of vessels that had participated in the north Pacific albacore fishery from 1974 through 1976. To accomplish this, any vessel in the annual CWDB population of vessels (CWDB fleet) that landed albacore, in the year under consideration, was classified as part of the "Albacore Fleet" for that year. A subset of vessels, hereinafter referred to as the "Panel Fleet," is made up of those vessels that landed albacore in all three years, i.e. belonged to the albacore fleet in each year 1974 through 1976. Therefore, for each year there will be a CWDB fleet and an albacore fleet; the panel fleet exists for all three years, 1974 - 1976.

In addition, vessels in the CWDB fleet and the albacore fleet for each year, and the panel fleet are categorized according to their annual ex-vessel revenue: one category consists of vessels that had annual ex-vessel revenues of $10,000 (Ten-K) or more from all species landed; the other contains those vessels having annual ex-vessel revenues less than $10,000 from all species landed.

Annual landings of albacore reported in the CWDB ranged from a high of 24,400 tons in 1974, to a low of 16,500 tons in 1976, with the corresponding ex-vessel revenues from albacore ranging from $18 million to $15 million (Table 1). For those vessels in the albacore fleets, ex-vessel revenue from albacore averaged 41% of the ex-vessel revenue from all species in 1974, and fell to 19% in 1976. For individual vessels in the albacore fleets, the annual ex-vessel revenue from albacore ranged from less than 1% to 100% of the annual ex-vessel revenue from all species. A

relatively small proportion of the albacore fleet accounted for the majority of the albacore landed each year: 10% of the fleet landed 40% of the albacore and 20% of the fleet landed 60% of the albacore in all three years (Figures 1, 2, and 3).

Over this period, annual ex-vessel revenues averaged $16,600 and ranged from less than $5,000 to over $1,000,000 (Table 2). Over 75% of the vessels had annual ex-vessel revenues of less than $10,000. Vessels landing only salmon had the lowest average annual ex-vessel revenue. Vessels landing no salmon had the highest average annual ex-vessel revenue.

Partitioning the CWDB fleets into vessels which landed only salmon, vessels which landed salmon and other species, and vessels landing no salmon, allowed cross comparisons among these vessel types, where "vessel type" refers to the species groupings that the vessel lands. Based on the 1974-1976 average percentage of total annual landings in major species groups, by Ten-K vessels in the CWDB, salmon only vessels land most of the pink, chum, sockeye, steelhead, and miscellaneous salmon, while combination vessels land most of the chinook and coho salmon as well as half of the albacore. Non-salmon vessels land half of the albacore, and most of the other tropical tuna and bonita, groundfish, and flatfish (Table 3).

Physical characteristics of vessels vary greatly; vessels range from less than 20 feet to over 100 feet in length (Table 4). Over 65% of the vessels in the CWDB fleet for each year are under 35 feet in length, while over 65% of the vessels in each of the albacore fleets and the panel fleet, are 35 feet or greater in length. Relatively few of the Ten-K vessels are less than 35 feet in length.

The principal gear types used by the vessels in the Ten-K, CWDB are troll gear and miscelleaneous gear (Table 5). The distributions for 1974 and 1975 are relatively unchanged. However, in 1976, practically half of the vessels in the CWDB fleet did not report a gear type(s), which partially explains the absence of purse seine and drift net gears for salmon only vessels in that year. It should also be pointed out that pole and line gear (bait boat), a gear used in the albacore fishery, was not explicitly identified in the CWDB.

A performance summary of Ten-K vessels in the CWDB is given in Table 6. Average annual ex-vessel revenue per vessel by target species and by length class is shown in part A. The average annual ex-vessel revenue for Ten-K vessels landing only salmon was $28,900 and $26,000 respectively for 1974 and 1975, but fell to $15,300 in 1976 when the number of salmon-only vessels earning at least $10,000 decreased by 94%. Average ex-vessel revenues for vessels that landed a combination of salmon and other species averaged $28,800 in 1974, $28,800 in 1975, and rose to $33,500 in 1976. Ten-K vessels that did not land salmon had an average ex-vessel revenue of $211,500 from 1974 through 1976. Average annual ex-vessel revenue per Ten-K vessel by vessel length category varied considerably from 1974 through 1976, ranging from $18,000 in 1974 for Ten-K vessels less than 35 feet in length to $749,700 for vessels at least 75 feet in length for 1976. The earnings by vessel type and length class in part B of table 6 shows that CWDB Ten-K vessels that did not land salmon tended to be larger than vessels that landed only salmon and that less than 1% of the Ten-K fleet landed just salmon in 1976 compared to over 12% during the previous two years. A breakdown of average ex-vessel revenue by target species and length category for CWDB vessels is shown in part C of Table 6. The CWDB

Ten-K vessels under 35 feet long that landed only salmon had the lowest per vessel ex-vessel total revenue, averaging $14,000 from 1974 through 1976, while Ten-K vessels over 74 feet in length that did not land salmon had the highest per vessel total ex-vessel revenue, averaging $652,000 over the same period.

There are 13 port groups or landing areas in the CWDB (Figure 4). These landings areas are:

Washington
- (1) Puget Sound
- (2) Straits of San Juan de Fuca
- (3) Coastal
- (4) Columbia River

Oregon
- (5) Northern
- (6) Central
- (7) Southern

California
- (8) Eureka
- (9) San Francisco
- (10) Monterey
- (11) Santa Barbara
- (12) Los Angeles
- (13) San Diego

These port groups were used to construct two measures of vessel mobility: 1) the number of different landing areas visited, and; 2) the distance between the two most widely separated landings areas visited. The latter is an ordinal measure based on the numbering of landing areas in ascending order from north to south. The minimum number of landings areas visited is 1 and the maximum is 13. The minimum of the mobility-distance measure is 0 while the maximum is 12. For example, if a vessel had landings in the San Francisco and San Diego areas only, the number of landing areas visited is 2. The distance measure is 4, since by the ordinal scale: 13 - 9 = 4.

The mode, mean, and maximum values of vessel mobility, for CWDB Ten-K vessels are reported in Table 7. The modal values for distance is zero for all years and vessel categories. This indicates that 97% of the vessels land in the same general area. Vessels landing a combination of salmon and other species in 1974 and 1975 have a modal value of two for visits indicating that these vessels landed in two distinct and not necessarily adjacent landing areas. In 1976, the modal value for visits was one for all vessel classes, indicating that most vessels landed in the same general area and were less mobile than in 1974 or 1975. Vessels that had landings in all the species groups are the most mobile. These measures are based on the distribution of the vessel's landings and do not necessarily reflect the geographic area covered by the actual fishing operations.

The foregoing discussion should give the reader some insight into the structure and performance of the CWDB fleets for the years 1974-1976, and their Ten-K sub-fleets. The next section will concentrate on those vessels involved in the albacore tuna fishery.

THE ALBACORE FLEET

In this section, the CWDB is examined in order to characterize the operations, physical features and performance of the "Albacore Fleet" in each of the years 1974-1976, and the "Panel Fleet" for all three years. The following questions are addressed: (1) what are the physical characteristics of the CWDB vessels that landed albacore; (2) where and when were albacore landed; (3) how mobile was the fleet; (4) what were the species combinations and value of these landings; and, (5) how much did albacore contribute to the average vessel's ex-vessel revenue?

From 1974 through 1976, 4,585 different U.S. vessels landed albacore at U.S. Pacific coast ports. The "Albacore Fleet" averaged 2,169 vessels for each of these years, and 50% of the vessels in the albacore fleet had an annual ex-vessel revenue of $10,000 or greater. Of the total number of vessels that landed albacore over the three year period, 780 of these landed albacore in all three years and these vessels comprise the "Panel Fleet." In any one year, 1974 through 1976, vessels in the panel fleet represented 33% of the vessels in the albacore fleet, and accounted for approximately 60% of the total annual tonnage of albacore landed. Average annual landings of albacore for the panel fleet were almost twice the annual average of the albacore fleet. A breakdown of average albacore landings by year, fleet, and vessel species composition is presented in Table 8.

The Panel fleet was mainly composed of vessels in the 35 to 55 foot length class (Table 4), over 78% of which reported using troll gear for part of their fishing operations. Vessels in this fleet also reported using purse seine nets, crab pots, trawl gear and longline gear (Table 9). Pole and line gear (baitboats), was not explicitly identified in the CWDB.

There was a significant shift in the geographic distribution of albacore landings from 1974 through 1976 (Figure 5, Table 10). In 1974 and 1975, ports in Oregon and Washington received 78% and 67% respectively of all the albacore landed which was somewhat unusual, since historically, the bulk of the albacore landings were made at California ports. By 1976, west coast albacore landings started returning to the historical pattern

when California ports received 64% of the albacore landed (Table 10). Vessels in the panel fleet did not land any albacore in Washington ports during 1976 (Figures 6, 7, and 8).

Based on the number of ports visited and the ordinal distance between ports visited, as described above, a combined mobility measure, ((visits + distance)/2), was calculated for vessels in the albacore fleets. This combined measure was used to classify vessels as: low mobility, combined mobility average not greater than 2.0; medium mobility, combined mobility average 2.5 through 4.0; and, high mobility, combined mobility average greater than 4.0. According to this classification scheme, the distribution of albacore fleet vessels is shown in Table 11. More than half the Ten-K albacore vessels, which would include members of the panel fleet, fell in the low mobility class from 1974 through 1976. By comparison, more than half the vessels in the panel fleet, and panel Ten-K fleet were in the medium and high mobility classes from 1974 through 1976.

Vessels that were active in the albacore fishery also landed salmon, crab, groundfish, shellfish, and other tuna (yellowfin, skipjack, bluefin, bigeye and bonito). Table 12 provides a breakdown of the panel fleet's total landings according to the various species combinations landed by individual vessels from 1974 through 1976. While the panel fleet is made up of CWDB vessels that landed albacore in all three of the years 1974 - 1976, the species combinations landed by these vessels can vary from year to year. Therefore, the number of vessels landing a particular species combination will not be constant.

The dominant panel fleet species combination, in terms of number of vessels, was albacore - salmon - groundfish for all three years. On average, 280 panel fleet vessels reported landing this combination of species during the CWDB period. These vessels also accounted for the largest percentage, 24%, of the annual albacore landings by any species combination group in the panel fleet. The number of vessels landing albacore - other tropical tuna averaged slightly less than 10% of the fleet, approximately 74 vessels, but these vessels accounted for almost 24% of the albacore landings of the panel fleet during the CWDB period. Panel fleet vessels which did not land salmon landed 99% of the other tropical tuna.

Those vessels that landed any shrimp in combination with any other species had the lowest average percentage of the annual albacore landings by the panel fleet, 2%. Except for the vessels that landed albacore exclusively, those vessels in the panel fleet that landed a combination of albacore and salmon had the highest average landings of albacore as a percentage of total landings, 84%, for each of the major species combinations during the entire CWDB period. Vessels that landed crab and/or shrimp along with other species had the lowest average landings of albacore as a percentage of total landings and revenues from albacore contributed very little to total ex-vessel revenues for these species combinations. Most of the dungeness crab, as well as the shrimp, was landed by vessels which also landed albacore, salmon, and groundfish. There were no vessels that landed the species combination of just albacore and shrimp.

Vessels that landed the species combination albacore - other tropical tuna had the highest average total ex-vessel revenue per vessel, $104,000 for the 1974 - 1976 period; vessels that landed only albacore had the lowest average total ex-vessel revenue per vessel, $15,000 for the period (Table 12).

Simple correlations between ex-vessel revenue, vessel mobility and albacore landings were estimated for vessels in the panel fleet (Table 13). Positive correlations were found between total ex-vessel revenue and mobility, albacore landings and mobility, and albacore landings and ex-vessel revenue. The strongest correlation was between albacore landings and total ex-vessel revenues which reflects the relative dependency of the panel fleet on albacore (Table 12). The comparatively low value for this correlation in 1976 is probably attributable to a reduction in albacore landings relative to other species in 1976; in 1976, albacore contributed less than 40% to total ex-vessel revenues for the panel fleet. The same pattern in the strength of the correlation between mobility and albacore landings is not unexpected given the somewhat unusual pattern of albacore landings from 1974 through 1976. It is assumed that many of the California based panel fleet vessels made landings in Washington and Oregon during 1974 and 1975 in which case their albacore landings would be associated with higher mobility compared to that in 1976 (Figures 6,7 and 8; Table 11). The correlations between vessel mobility and total ex-vessel revenue exhibit similar behavior, but of a smaller magnitude, which is likely due to the effect of albacore landings on total ex-vessel revenue, i.e. the interaction between albacore landings, total ex-vessel revenue and mobility which is not isolated in the simple correlation procedure.

Table 14 presents average albacore landings, average ex-vessel revenue, and average albacore revenue as a percent of total ex-vessel revenue by vessel length and vessel mobility for members of the panel fleet. In all three years, average albacore landings and average total ex-vessel revenue increased with vessel mobility and vessel length. Average albacore revenue as a percent of total revenue increased with vessel mobility in all three years. This indicates that vessels with a higher mobility measure fish more intensively for albacore. Average albacore revenue as a percent of total revenue increases with vessel length up to the 75 foot and greater length category. This indicates that vessels of at least 75 feet in length landed relatively greater volumes of alternative species than smaller vessels during the CWDB period.

CONCLUSIONS

Vessels that participated in the north Pacific albacore fishery from 1974 through 1976 ranged from less than 34 feet to greater than 75 feet in length. They used several different gears in their fishing operations and landed albacore and a number of other species/species combinations including salmon, other tuna, crab, shrimp, and groundfish. Vessels landed their albacore catches in Washington, Oregon and California. From 1974 through 1976, about 25% of the vessels that landed albacore accounted for over 70% of the albacore landings in each year.

Based on the physical characteristics, patterns of operation and performance of vessels in the CWDB that consistently landed albacore, i.e., vessels in the panel fleet, it is possible to construct the following vessel profile:

The vessel was between 35 and 54 feet in length and probably used troll gear in most of its albacore fishing operations. It landed albacore at two distinct port areas.

The vessel had average albacore landings of 18 tons from 1974 through 1976 which accounted for 45% of its total landings, and had an average ex-vessel revenue from albacore of $13,983 which contributed 47% to its total ex-vessel revenue.

Along with landing albacore, it most likely landed salmon and groundfish which together contributed an average 5.61 tons of additional landings and $9,118 in additional ex-vessel revenue. Its total annual ex-vessel revenue was in excess of $26,000.

Table 1. Coastwide Summary Data Base Overview, 1974-1976.

	1974	1975	1976
Vessels in the Coastwide Data Base	14,181	14,376	16,958
Albacore fleet[1] (vessels)	2,090	2,208	2,208
Albacore landings (thousand short tons)	24.4	22.7	16.5
Ex-vessel revenue ($M) all species	44.8	37.6	83.2
Albacore revenue as % of of total ex-vessel revenue	41.2%	40.2%	18.6%
Albacore fleet vessels with ex-vessel revenues >$10k[2]	1142	1057	1046
Albacore landings (thousand short tons)	22.5	20.0	14.6
Albacore revenue as % of total ex-vessel revenue	41.5%	39.8%	17.2%
Panel fleet[3] (vessels)	780	780	780
Albacore landings (thousand short tons)	15.8	15.2	11.6
Albacore revenue as % of total ex-vessel revenue	54.8%	48.6%	38.4%

[1]Albacore fleet - identifiable vessels landing albacore.
[2]Ten-K fleet - vessels landing albacore with ex-vessel revenues greater then $10,000.
[3]Panel fleet - identifiable vessels landing albacore in all three years.

Source: Coastwide Data Base 1974, 1975, and 1976.

Table 2. Distribution of vessels (number of vessels) by estimated ex-vessel revenues, 1974-1976.

Ex-vessel revenue class:	1974	1975	1976
<$5000	9283	10233	10464
5000-9999	1684	1511	1949
10K-14999	727	697	878
15K-19999	419	418	540
20K-29999	429	465	641
30K-39999	224	214	336
40K-49999	160	154	209
50K-59999	97	90	124
60K-69999	82	67	90
70K-79999	57	64	56
80K-89999	34	38	59
90K-99999	47	37	60
100K-199999	129	107	190
200K-499999	66	57	91
500K-999999	57	75	57
1,000K+	43	34	50
Average ex-vessel revenue for the entire fleet (thousand dollars / vessel)			
Fleet:	$16.2	$15.1	$18.5
vessel type:[1]			
S	3.5	2.8	2.9
C	7.8	7.9	10.4
N	59.9	53.0	57.4

[1]vessels categorized by type:
S - vessels landing only salmon,
C - vessels landing a combination of salmon and other species,
N - vessels landing only non-salmon species.
(includes all vessels in the CWDB)

Source: Coastwide Data Base 1974, 1975, and 1976.

Table 3. Average percent of total annual landings of major species groups by vessel type for all CWDB vessels with ex-vessel revenues greater than or equal to $10,000, 1974-1976.

Species:	Vessel type:[1] S	C	N
albacore tuna	-	50%	50%
other tuna	-	>1%	99%+
chinook & coho salmon	5%	95%	-
other salmon	75%	25%	-
dungeness crab	-	75%	25%
groundfish	-	30%	70%
flatfish	-	30%	70%
shrimp	-	50%	50%
herring	-	40%	60%
anchovy	-	1%	99%
average $/ton (three year average)	1740	720	385

[1]Vessel type:
S - vessels landing only salmon species,
C - vessels landing a combination of salmon and other species,
N - vessels landing only non-salmon species.
groundfish - ocean perch, rockfish, and cod.
flatfish - sole, halibut, and other flatfish.

Source: Coastwide Data Base 1974, 1975, and 1976

Table 4. Percentage of vessels by length class and vessel category, 1974-1976.

Length class (feet)	CWDB[1]	TEN-K[2]	ALBACORE[3]	ALBACORE TEN-K[4]	PANEL[5]
1974					
<34	69	19	21	7	8
35-54	25	55	62	69	70
55-74	4	18	14	20	19
75>	2	8	3	4	3
total	100	100	100	100	100
1975					
<34	67	20	21	5	8
35-54	26	54	64	73	70
55-74	5	18	13	19	19
75>	2	8	2	3	3
total	100	100	100	100	100
1976					
<34	66	21	32	11	8
35-54	27	54	52	65	70
55-74	5	16	13	18	19
75>	2	9	3	6	3
total	100	100	100	100	100

[1]CWDB - Coastwide Data Base - entire fleet
[2]TEN-K - entire fleet with estimated ex-vessel revenue =>$10,000
[3]ALBACORE - vessels landing albacore
[4]ALBACORE TEN-K - vessels landing albacore w/ ex-vessel revenue =>$10,000
[5]PANEL - vessels landing albacore all three years

Source: Coastwide Data Base 1974, 1975, and 1976.

Table 5. Percent of vessels by type of gear for the Coastwide Ten-K fleet, 1974-1976.

Vessel type:[1]	----1974-----			-----1975------			-----1976------		
	S	C	N	S	C	N	S	C	N
gear type:[2]									
troll	4	81	37	4	82	28	100	90	27
purse seine	56	8	29	58	8	34	0	1	28
drift net	45	19	6	44	20	7	0	14	7
set net	0	0	0	0	1	0	0	0	0
trawl	0	12	21	0	11	22	0	11	16
longline	0	1	4	0	2	3	0	3	1
crab pot	0	28	12	0	32	14	0	28	14
miscelleneous	0	13	41	2	22	45	0	28	51
unknown	2	38	31	1	39	35	56	50	41

[1]Vessel type categorized by:
S - vessels landing only salmon,
C - vessels landing a combination of salmon and other species,
N - vessels landing only non-salmon species.

[2]Gear types will exceed 100% due to multi-gear fishing.

Source: Coastwide Data Base 1974, 1975, and 1976.

Table 6A. Average ex-vessel revenue (thousand dollars) by vessel type and length class for the Coastwide Ten-K fleet, 1974-1976.

	1974		1975		1976	
	average revenue	number of vessels	average revenue	number of vessels	average revenue	number of vessels
	$81.8	2,416	$78.9	2,397	$106.3	2,031
type:[1]						
salmon	28.9	289	26.0	315	15.3	18
combination	28.8	1,417	28.2	1,322	33.5	1,285
non-salmon	208.8	710	189.0	760	236.8	728
overall length:						
less than 35ft	18.1	456	23.0	476	22.3	437
35 - 54 feet	40.9	1,339	31.5	1,305	37.1	1,089
55 - 74 feet	154.7	430	85.0	438	102.5	329
75 ft & larger	529.8	191	560.8	178	749.7	176

[1]Vessel type categorized by:
salmon: vessels landing only salmon,
combination: vessels landing a combination of salmon and other species,
non-salmon: vessels landing only non-salmon species.

Source: Coastwide Data Base 1974, 1975, and 1976.

Table 6B. Percentage of CWDB Ten-K vessels by type and length class, 1974-1976.

vessel type:[1]	-----1974---- S	C	N	------1975----- S	C	N	------1976----- S	C	N
length class: (feet)									
<35	3.9	12.2	2.8	4.5	11.9	3.5	0.3	16.8	4.4
35-54	6.5	39.1	9.8	6.7	36.3	11.5	0.6	39.4	13.6
55-74	1.6	6.9	9.3	2.0	6.7	9.6	0.0	6.5	9.7
>75	0.0	0.5	7.5	0.0	0.3	7.2	0.0	0.5	8.2

[1]Vessel type categorized by:
S: vessels landing only salmon,
C: vessels landing a combination of salmon and other species,
N: vessels landing only non-salmon species.

Source: Coastwide Data Base 1974, 1975, and 1976.

Table 6C. Average ex-vessel revenues (thousands of dollars) of the CWDB Ten-K fleet by vessel type and length class, 1974-1976.

vessel type:[1]	-----1974------			-----1975-------			-----1976-------		
	S	C	N	S	C	N	S	C	N
length class: (feet)									
<35	14.5	16.0	32.3	14.2	17.1	54.9	12.0	20.0	31.6
35-54	33.4	27.5	50.7	29.0	26.6	48.4	16.9	32.1	52.5
55-74	45.9	56.2	121.2	41.9	54.1	115.6	-	69.2	124.8
>74ft	-	81.1	593.1	-	96.3	577.0	-	135.9	786.7

[1]Vessel type categorized by:
S: vessels landing only salmon,
C: vessels landing a combination of salmon and other species,
N: vessels landing only non-salmon species.

Source: Coastwide Data Base 1974, 1975, and 1976.

Table 7. Mobility by vessel type for vessels in the CWDB Ten-K fleet, 1974-1976.

vessel type:[1]	------salmon------			---combination----			----non-salmon----		
	mode	mean	max	mode	mean	max	mode	mean	max
mobility:[2] (index number)									
1974 visits	1	1.3	3	2	2.3	8	1	1.7	6
1974 distance	0	0.3	6	0	1.8	12	0	1.7	10
1975 visits	1	1.3	3	2	2.4	10	1	1.7	7
1975 distance	0	0.3	3	0	2.1	12	0	1.9	11
1976 visits	1	1.4	5	1	2.0	8	1	1.5	6
1976 distance	0	0.4	4	0	1.3	8	0	0.8	8

[1]Vessel type categorized by:
salmon: vessels landing only salmon,
combination: vessels landing a combination of salmon and other species,
non-salmon: vessels landing only non-salmon species.

[2]Mobility index number definitions:
visits - number of distinct port groups where vessel had landings.
distance - ordinal distance between port groups where vessel had landings.

Source: Coastwide Data Base 1974, 1975, and 1976.

Table 8. Average albacore landings, (short tons per vessel), 1974-1976.

		---Vessels landing albacore----		
		all[1]	Ten-K[2]	Panel[3]
vessel type:[4]				
1974	C	8.3	13.4	15.0
	N	20.3	36.2	29.2
	all	11.7	19.7	20.2
1975	C	8.4	14.0	14.9
	N	14.3	32.1	27.9
	all	10.3	18.9	19.5
1976	C	5.5	9.6	10.9
	N	10.2	21.2	20.5
	all	7.5	14.0	14.8

[1] Albacore fleet
[2] Vessels in the albacore fleet with ex-vessel revenues greater than or equal to $10,000
[3] Vessels landing albacore in all three years 1974, 1975, and 1976
[4] Vessels categorized by:
C - vessel landing a combination of salmon and other species,
N - vessel landing only species other than salmon.

Source: Coastwide Data Base 1974, 1975, and 1976.

Table 9. Percentage of albacore Panel fleet vessels using specific gear types[1], 1974-1976.

	1974	1975	1976
gear type:			
troll	87.8	84.1	78.6
pot	11.3	14.6	12.2
seine	3.3	9.2	2.1
trawl	2.2	2.3	2.2
longline	2.2	2.1	2.2
drift net	1.7	3.1	3.5
set net	0.0	0.0	0.1
miscellaneous	47.8	59.6	66.0
not reported	55.4	54.9	53.5
number of distinct gear types:			
no gear	10.8	9.2	18.5
one	71.8	68.5	64.4
two	15.9	20.0	15.1
three	1.4	2.3	2.1
four	0.1	---	---

[1]types will exceed 100% due to multi-gear fishing.

Source: Coastwide Data Base 1974, 1975, and 1976.

Table 10. Pacific Coast Landings of Albacore, 1974-1976.
(thousand short tons)

	1974	1975	1976	Historical average (1951-1976)[1]
Washington	8.4	7.8	3.6	1.9
Oregon	12.5	7.4	3.0	6.0
sub-total	20.9	15.2	6.6	7.9
California	5.9	7.5	13.9	14.3
Grand-Total	26.8	22.7	20.5	22.2

1 "Fishery Statistics of the United States" 1976.

Source: CWDB - Coastwide Data Base 1974, 1975, and 1976 including data from unidentifiable vessels.

Table 11. Distribution of CWDB vessels by combined mobility measure (index number), 1974-1976.

Mobility:[1]	Low (0.5-2.4)	Medium (2.5-4.4)	High (4.5+)
1974			
Fleet Ten-K[2]	67.3	22.7	10.1
Panel[3]	39.5	37.2	23.3
Panel Ten-K[4]	26.3	41.3	32.5
1975			
Fleet Ten-K	68.2	17.7	14.1
Panel	35.0	31.5	33.5
Panel Ten-K	21.4	31.9	46.7
1976			
Fleet Ten-K	69.6	22.4	8.0
Panel	48.3	35.5	16.2
Panel Ten-K	39.6	39.8	20.6

[1]Mobility measure = (visits + distance) / 2
[2]Fleet Ten-K - entire CWDB fleet with ex-vessel revenue =>$10,000.
[3]Panel - vessels landing albacore in all three years.
[4]Panel Ten-K - vessels landing albacore in all three years and having an ex-vessel revenue =>$10,000.

Source: Coastwide Data Base 1974, 1975, and 1976.

Table 12A. Panel fleet landings and revenues by species combination, 1974.

species combination								within vessel class						albacore as a % of panel fleet albacore landings
number of vessels	albacore	salmon	groundfish (short tons)	other tuna	crab	shrimp	misc.	total landings	total revenue ($K)	landings per vessel (short tons)	revenue per vessel ($)	albacore as a % of total landings	albacore as a % of total revenue	
125	2801	-	-	-	-	-	-	2,801	$2,132	22	$17,059	100%	100%	18%
27	587	-	-	-	-	-	2359	2,946	1,110	109	41,137	20	40	4
96	1840	258	-	-	-	-	9	2,107	1,908	22	19,881	87	72	12
38	617	-	318	-	-	-	81	1,016	630	27	17,896	61	73	4
65	3804	-	-	6253	-	-	70	10,127	6,469	156	99,535	38	44	24
4	132	-	-	-	59	-	a	191	191	48	47,811	69	52	1
301	3997	1227	596	-	-	-	196	6,016	5,387	20	17,896	66	56	25
4	62	7	-	7	-	-	a	76	63	19	15,764	82	74	b
9	183	56	-	-	116	-	a	354	397	39	44,133	52	35	1
5	97	8	21	-	-	421	2	549	279	110	55,802	18	26	1
11	69	24	14	8	-	-	a	115	104	10	9,503	60	50	b
61	1114	314	73	-	439	-	11	1,951	2,075	32	34,013	57	40	7
4	32	16	1	a	8	-	a	56	68	14	16,934	57	35	b
2	c	c	c	-	c	c	c	-	-	-	-	-	-	-
18	240	-	88	120	-	-	122	570	300	32	16,679	42	60	2
3	43	-	31	-	47	-	a	120	120	40	40,165	36	27	b
4	97	-	131	-	-	163	71	462	257	116	64,338	21	28	1
1	c	-	c	c	-	c	c	-	-	-	-	-	-	-
2	c	-	c	-	c	c	c	-	-	-	-	-	-	-
Panel fleet total:														
780	15779	1913	1504	6390	688	734	2932	29,940	$21,739	38	$27,870	53%	54%	100%

Notes: a - landings of this species group were less than 1 ton
b - accounted for less than 1% of the panel fleet's albacore landings
c - to insure confidentiality of individual data, values are not reported
* - no vessels landing this species combination in this year

due to independent rounding, column and row totals may not add up.

Table 12B. Panel fleet landings and revenues by species combination, 1975.

species combination								within vessel class						albacore as a % of panel fleet albacore landings
number of vessels	albacore	salmon	groundfish (short tons)	other tuna	crab	shrimp	misc.	total landings	total revenue ($K)	landings per vessel (short tons)	revenue per vessel ($)	albacore as a % of total landings	albacore as a % of total revenue	
127	2746	-	-	-	-	-	-	2,746	$1,817	22	$14,310	100%	100%	18%
28	578	-	-	-	-	-	2230	2,808	1,033	100	36,924	21	36	4
95	1607	228	-	-	-	-	7	1,842	1,493	19	15,719	87	71	11
39	613	-	519	-	-	-	376	1,508	696	39	17,844	41	58	4
58	3315	-	-	7341	-	-	350	11,006	5,996	190	103,380	30	37	22
7	84	-	-	-	182	-	266	226	292	38	41,853	32	19	b
299	4198	1057	468	-	-	-	539	6,262	5,051	21	16,894	67	55	28
2	c	c	-	c	-	-	c	-	-	-	-	-	-	-
21	471	87	-	-	187	-	2	747	736	36	35,058	63	42	3
5	99	20	116	6	-	-	3	244	132	49	26,445	41	50	b
72	977	340	99	-	710	-	6	2,132	2,230	27	30,970	46	29	6
3	30	5	32	-	-	309	a	375	115	125	38,372	8	17	b
1	c	c	c	c	c	-	c	-	-	-	-	-	-	-
3	9	12	235	-	42	249	2	549	246	183	81,844	2	2	b
12	322	-	36	443	-	-	537	1,338	595	111	49,649	24	36	2
4	25	-	149	-	48	-	a	231	142	58	35,378	11	12	b
3	71	-	8	-	-	106	121	306	191	102	63,696	23	25	b
*	*	-	*	*	-	*	*	-	-	-	-	-	-	-
*	*	-	*	-	*	*	*	-	-	-	-	-	-	-
Panel fleet total:														
780	15222	1757	1670	7790	1171	666	4173	32,449	$20,349	42	26,710	47%	48%	100%

Notes:
a - landings of this species group were less than 1 ton
b - accounted for less than 1% of the panel fleet's albacore landings
c - to insure confidentiality of individual data, values are not reported
* - no vessels landing this species combination in this year

due to independent rounding, column and row totals may not add up.

Table 12C. Panel fleet landings and revenues by species combination, 1976.

species combination								within vessel class				albacore as a %		albacore as a % of panel fleet albacore landings
number of vessels	albacore	salmon	groundfish (short tons)	other tuna	crab	shrimp	misc.	total landings	total revenue ($K)	average landings per vessel (short tons)	average revenue per vessel ($)	of total landings	of total revenue	
146	2411	-	-	-	-	-	-	2,411	2,255	17	$15,447	100%	100%	21%
14	116	-	-	-	-	-	741	857	365	61	26,053	19	43	1
101	1457	252	-	-	-	-	168	1,877	2,048	19	20,282	78	67	13
21	330	-	713	-	-	-	253	1,296	744	61	35,443	17	41	3
99	2926	-	-	10641	-	-	1646	15,213	9,305	153	93,992	19	29	25
15	240	-	-	-	1078	-	a	1,318	1,630	88	108,684	18	14	2
239	2231	1027	332	-	-	-	98	3,688	4,908	15	20,538	60	43	19
7	158	20	-	2	-	-	a	180	196	26	28,107	88	75	1
14	168	34	-	-	406	-	a	607	769	41	51,276	28	20	1
20	413	82	518	10	-	-	6	1,029	760	51	37,997	40	51	4
66	530	360	46	-	1408	-	99	2,443	3,285	37	49,772	22	15	5
6	32	3	123	-	-	809	4	971	407	162	67,800	3	7	b
1	c	c	c	c	c	-	c	-	-	-	-	-	-	-
5	56	8	77	-	101	268	a	510	419	102	83,829	11	13	b
21	437	-	114	8	-	-	178	737	478	35	22,747	60	86	4
3	19	-	11	-	237	-	1	268	332	89	110,522	7	5	b
0	*	-	*	-	-	*	*	-	-	-	-	-	-	-
0	*	-	*	*	-	*	*	-	-	-	-	-	-	-
1	c	-	c	-	c	c	c	-	-	-	-	-	-	-
Panel fleet total:														
780	11577	1796	1943	10662	3302	1319	3774	34,373	$28,116	44	$36,047	34%	39%	100%

Notes:
a - landings of this species group were less than 1 ton
b - accounted for less than 1% of the panel fleet's albacore landings
c - to insure confidentiality of individual data, values are not reported
* - no vessels landing this species combinations in this year

due to independent rounding, column and row totals may not add up.

Table 13. Correlations between ex-vessel revenue, mobility, and albacore landings for the albacore Panel fleet, 1974-1976.

		total ex-vessel --revenues (all species)-			----albacore landings---		
		1974	1975	1976	1974	1975	1976
mobility[1]	74	0.39	-	-	0.52	-	-
	75	-	0.35	-	-	0.56	-
	76	-	-	0.01	-	-	0.21
albacore landings	74	0.84	-	-			
	75	-	0.75	-			
	76	-	-	0.48			

[1]mobility - arithmetic average of the two mobility measures, visits and distance, which could range from 0.5 to 12.5

Source: Coastwide Data Base 1974, 1975, and 1976.

Table 14. Performance profile for the albacore Panel fleet, 1974-1976.

		averages		
		albacore landings (tons)	total ex-vessel revenue ($K)	albacore revenue as a % of total revenue
1974 fleet avg.		20.2	27.9	54.8
mobility[1]	LO	9.0	16.2	42.1
	MED	17.2	23.1	56.4
	HI	44.0	55.1	60.5
length (feet)	<35	3.9	6.4	46.1
	35-54	14.8	20.0	56.0
	55-74	37.5	46.3	61.3
	75>	81.9	153.3	40.4
1975 fleet avg.		19.5	26.7	48.6
mobility	LO	7.1	14.7	32.1
	MED	15.4	20.5	50.0
	HI	36.3	45.1	53.5
length (feet)	<35	3.7	6.1	40.3
	35-54	15.3	19.9	51.1
	55-74	35.3	43.3	54.2
	75>	60.5	138.2	29.1
1976 fleet avg.		14.8	36.0	38.4
mobility	LO	12.3	36.9	31.2
	MED	15.4	33.6	42.9
	HI	21.1	38.7	51.0
length (feet)	<35	3.9	10.7	34.1
	35-54	13.3	27.7	44.9
	55-74	23.2	52.6	41.2
	75>	26.9	194.6	12.9

[1]mobility classified by the following scale:
LO - average of two mobility indices <= 2.4
MED - average of two mobility indices between 2.5 and 4.4
HI - average of two mobility indices => 4.5

Source: Coastwide Data Base 1974, 1975, and 1976.

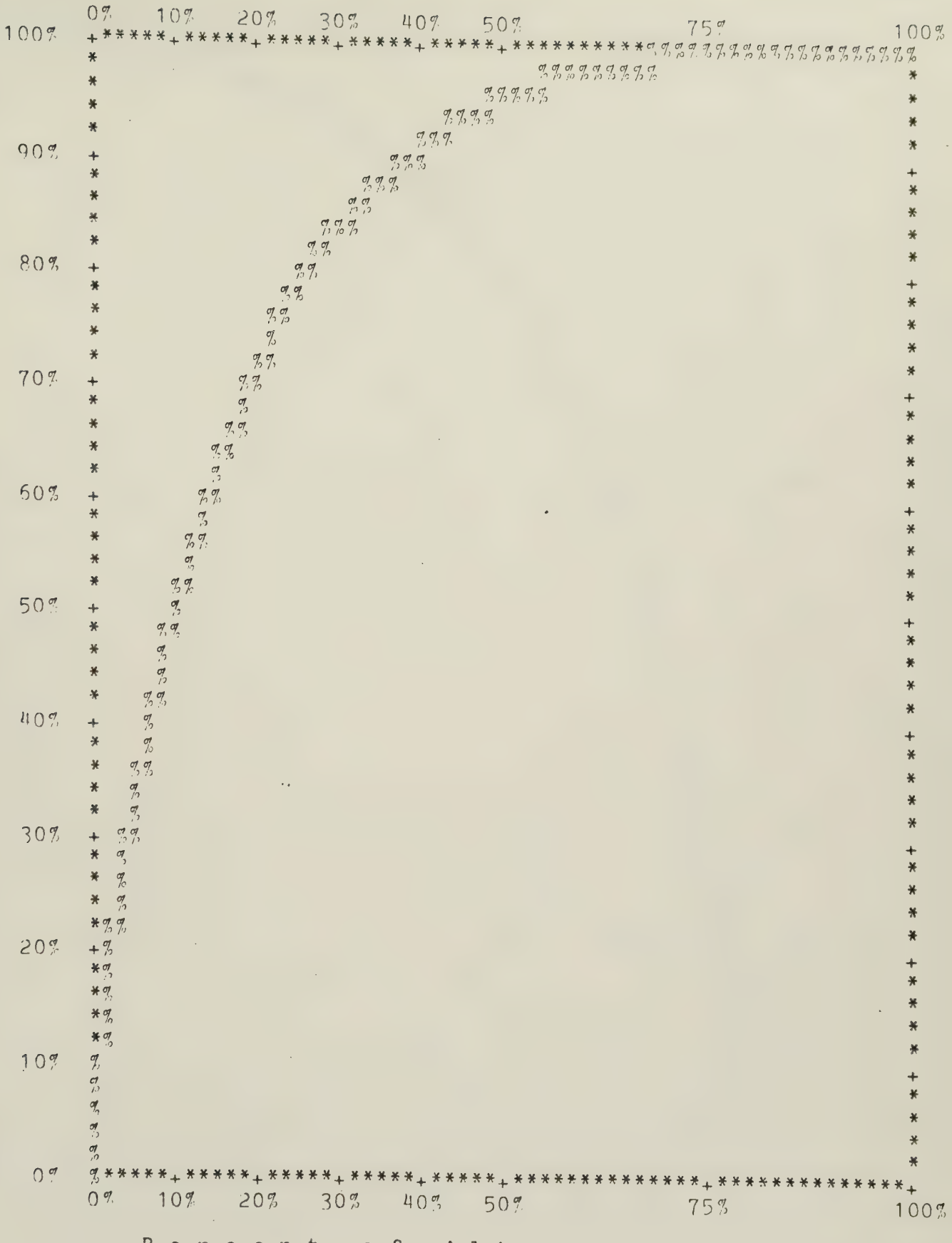

FIGURE 1. Percentage of landings by percentage of vessels landing albacore, 1974

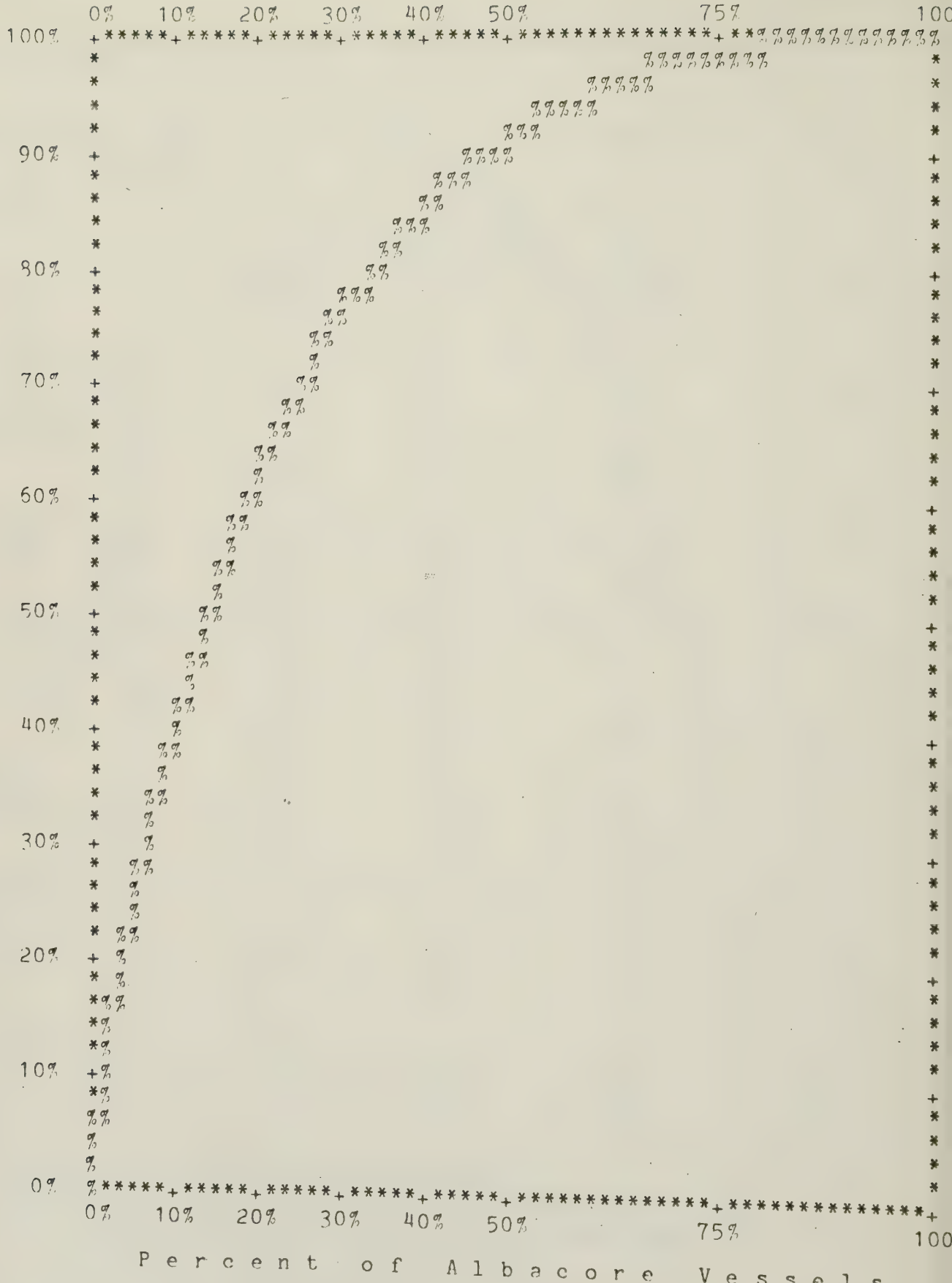

FIGURE 2. Percentage of landings by percentage of vessels landing albacore, 1975

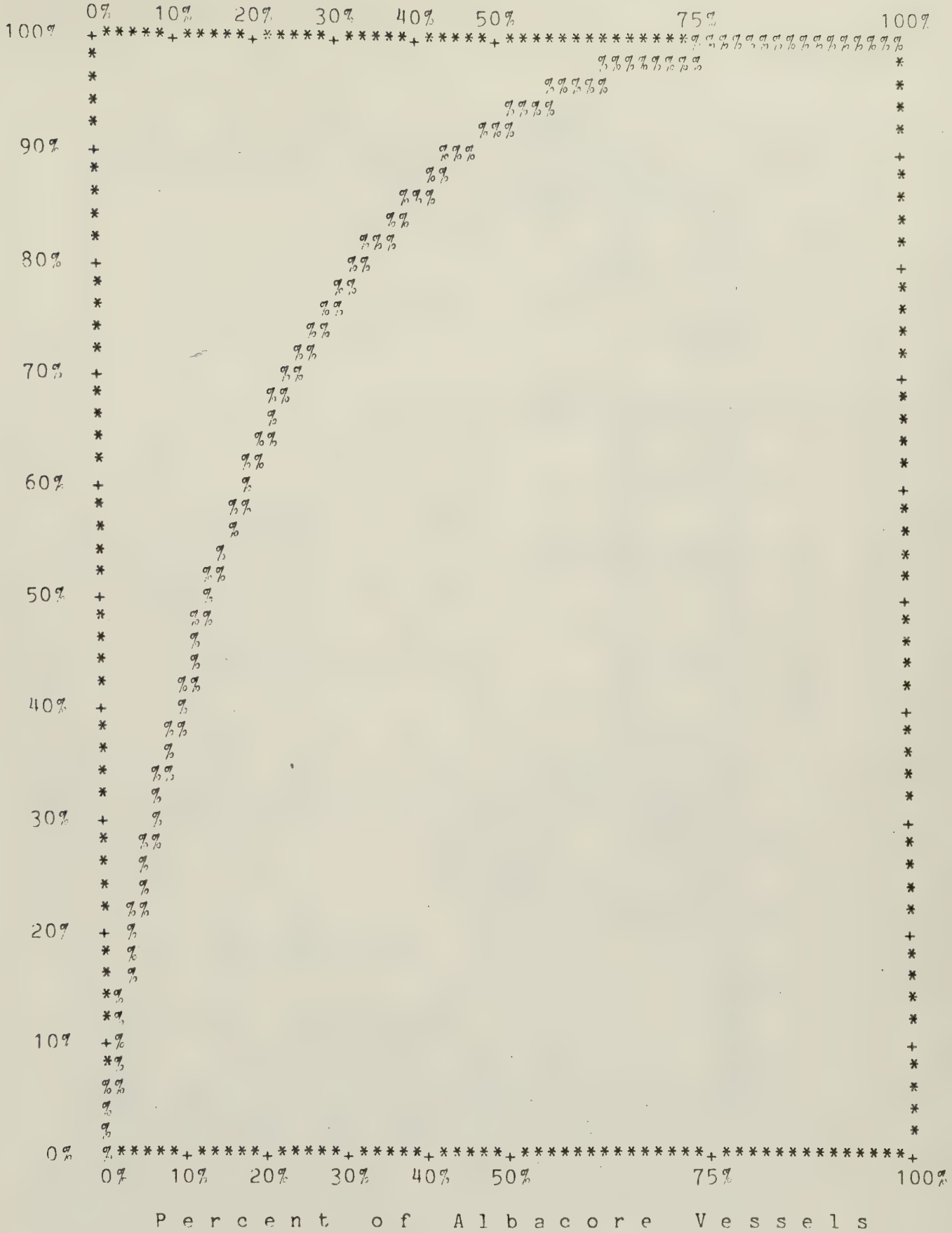

FIGURE 3. Percentage of landings by percentage of vessels landing albacore, 1976

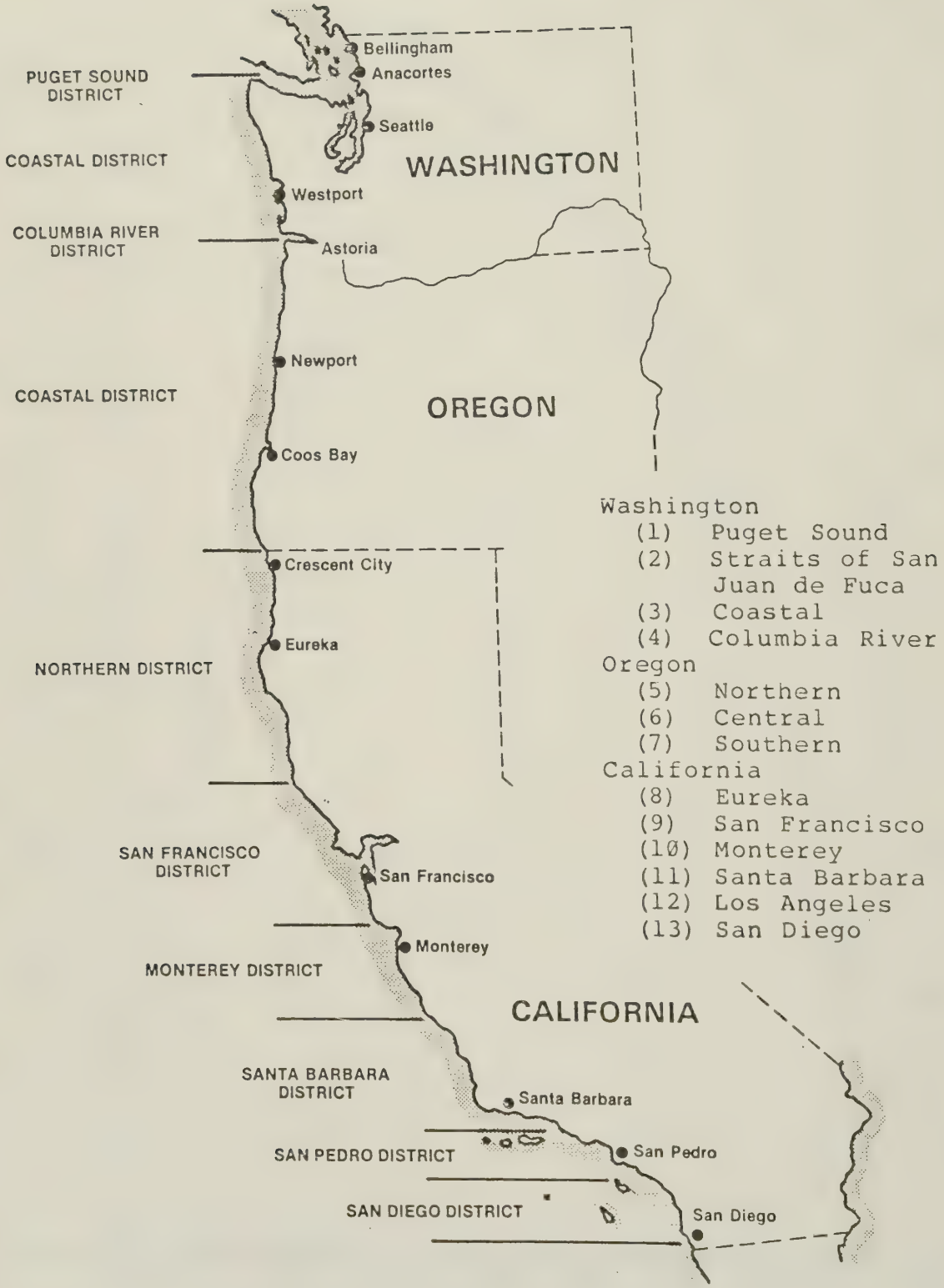

Figure 4. Pacific Coastal Port Areas

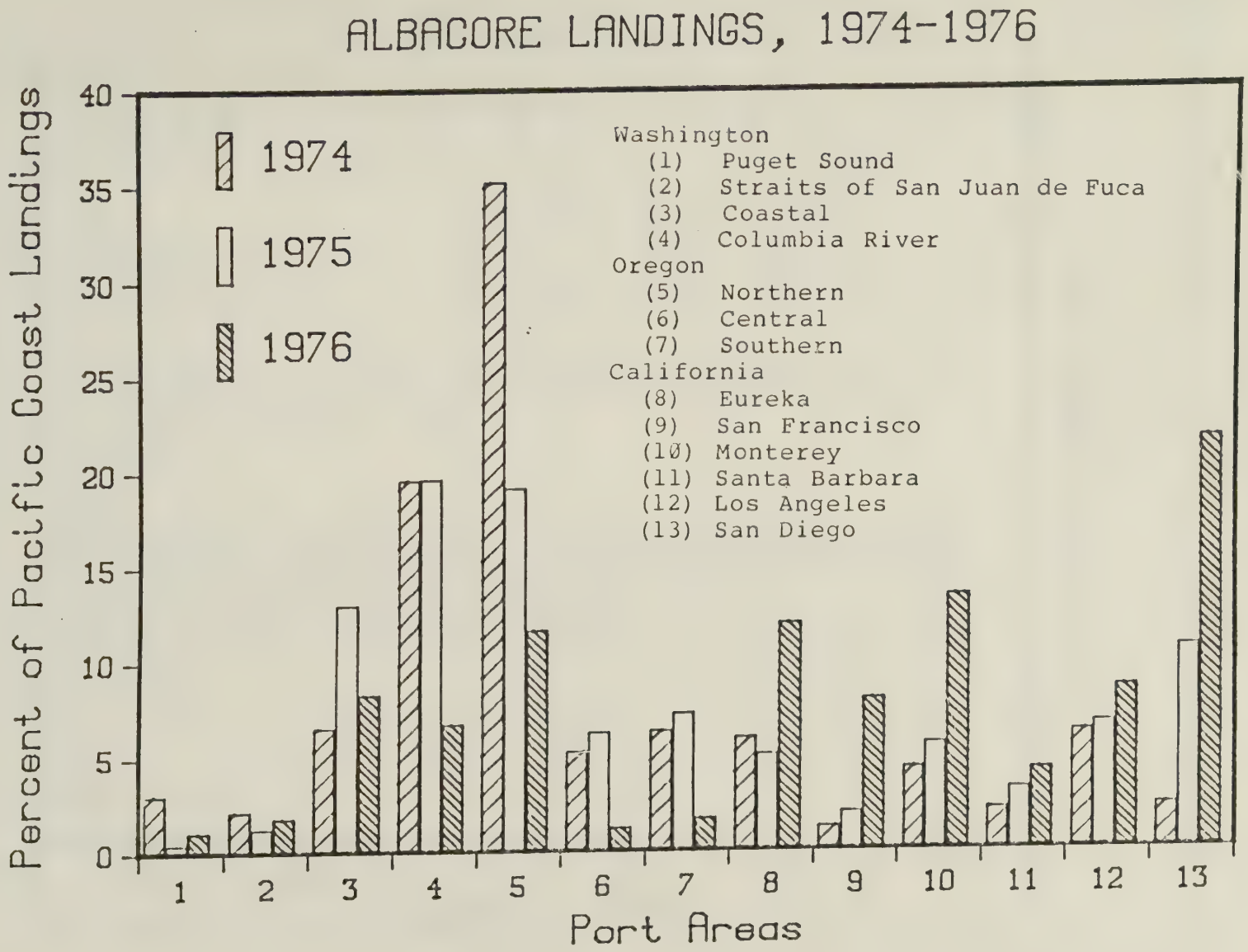

Figure 5. Percent of total albacore landings landed at the thirteen major port areas, 1974-1976

Figure 6. Albacore landings (Ktons) by the Panel fleet for each port area, 1974

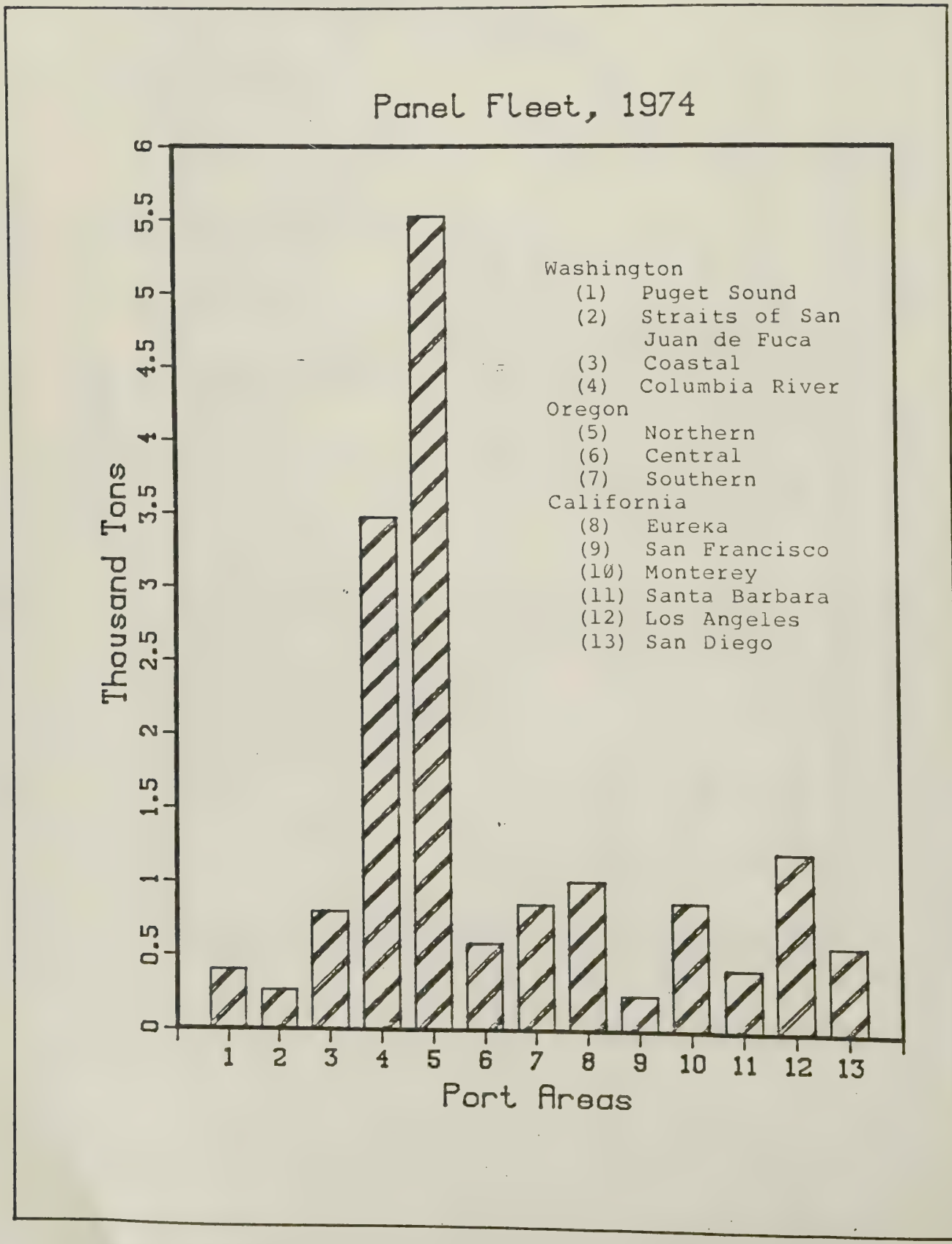

Figure 7. Albacore landings (ktons) by the Panel fleet for each port area, 1975

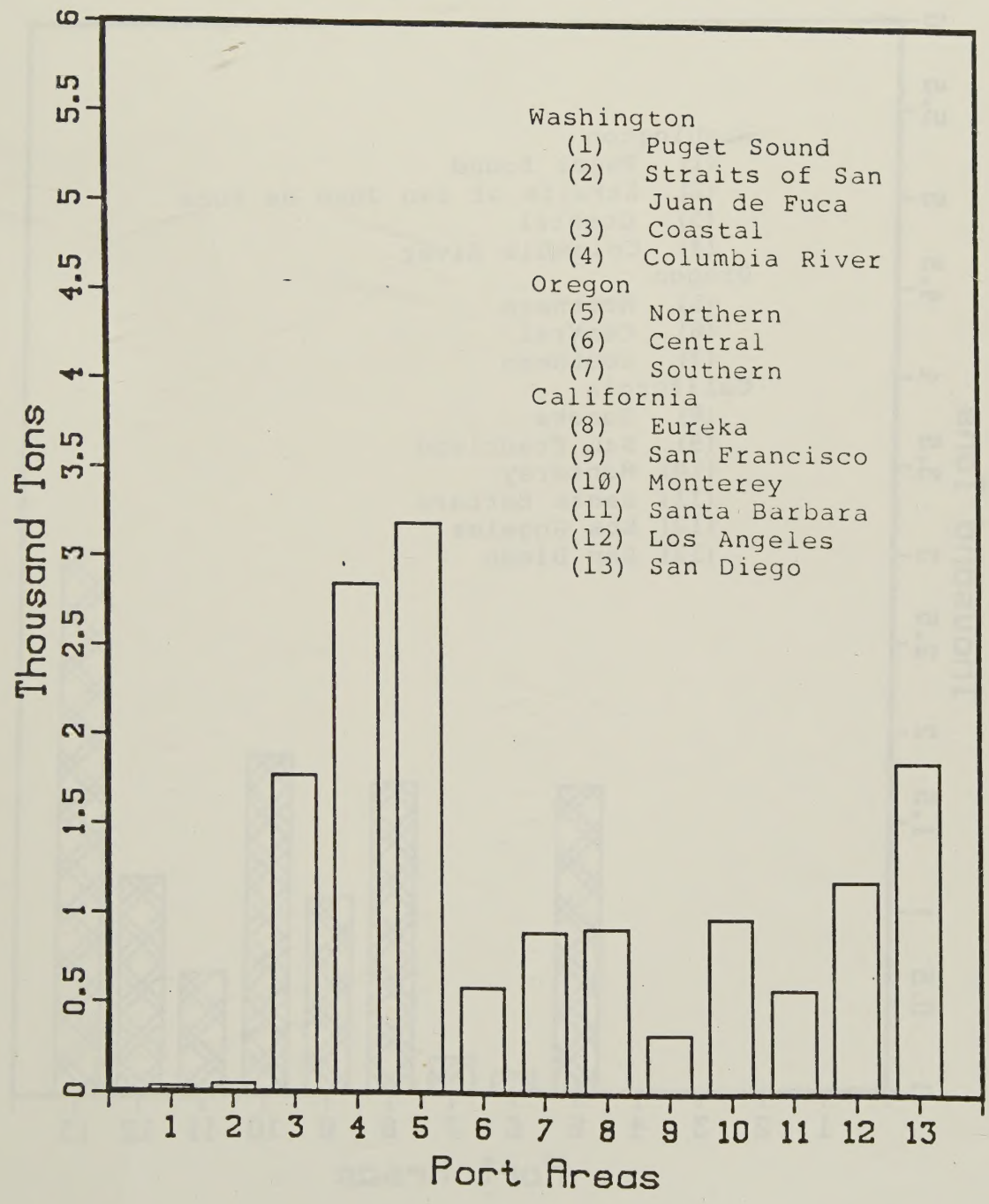

Figure 8. Albacore landings (Ktons) by the Panel fleet for each port area, 1976